

Experience Report about the Participation of Researchers of the Federal University of Rio Grande do Sul on the Internet Engineering Task Force

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Abstract. *The present work is an experience report about the participation of the authors, a Professor and a Ph.D Student of Federal University of Rio Grande do Sul, on the Internet Engineering Task Force. Such participation is funded by the Public Call 0001/2014 of the CGI.br.*

1. Introduction

The Internet Engineering Task Force (IETF), along with the Internet Research Task Force (IRTF), is the leading international forum for standardization of Internet technologies. Despite the importance of Brazil in the international context (and specially in the Computer Science area), the participation of Brazilians in the IETF is small. There are financial difficulties for such participation, since funding opportunities are lower than those provided by other countries. In this context, the Public Call 0001/2014¹, funded by the CGI.br, provides a significant aid for the development of joint activities between the IETF/IRTF and members of Brazilian research institutions and vendors.

The support for network service level requirements has become a critical concern in several Working Groups (WGs) of the IETF and Research Groups (RGs) of the IRTF. The topic of the Ph.D. thesis proposal of one of the authors, graduate student at the Federal University of Rio Grande do Sul (*Universidade Federal do Rio Grande do Sul - UFRGS*), is related with the monitoring of such requirements (service level monitoring [Nobre et al. 2012, Nobre et al. 2013, Nobre et al. 2014]). In this context, preliminary aspects of such thesis proposal were presented at two meetings of Network Management Research Group (NMRG) of the IRTF: the NMRG 31st Meeting (1st Workshop on Large Scale Network Measurements), presentation conducted by the student doctoral advisor, and the 32nd NMRG Meeting (Autonomics for Network Management), presentation conducted by the doctoral student himself. These presentations confirmed that there was interest in the context of IETF/IRTF to the service level monitoring aspects investigated by the student. In addition to the presentations themselves, interactions with members of different WGs, such as the IP Performance Metrics (IPPM) WG and Large-Scale Measurement of Broadband Performance (LMAP) WG, also showed that the participation in the IETF meetings could be beneficial for the authors. However, financial support was necessary for such participation, thus initiatives like CGI.br's Public Call 0001/2014 are essential. The authors of the present paper applied and were granted in this call.

¹Seleção Pública de Propostas para Participação em Grupos de Trabalho e Reuniões do IETF/IRTF Janeiro/2014 - <http://cgi.br/editais/ver/2>

The Autonomics for Network Management discussion hosted by the NMRG preceded the Use Cases for Autonomic Networking (UCAN) Bird of a Feather (BoF). This BOF was intended to expose several use cases to community review and to identify other possible use cases regarding Autonomic Networking (AN). The fundamental goal of AN is self-management, including self-CHOP properties (self-configuration, self-healing, self-optimization, and self-protection), in order to minimize dependency on human administrators and central management systems. One of the capabilities pointed out by the UCAN chairs was the ability for distributed entities to self-adapt their decision making process based on information and knowledge gained from their environment, which is directly related with the Ph.D. thesis proposal of one of the authors. In this context, there was an opportunity to write an Internet-Draft (I-D) describing the use case for AN in distributed detection of Service Level Agreement (SLA) violations [Nobre et al. 2015]. This I-D was presented as one of the series of use cases intended to illustrate requirements for AN in the UCAN BoF and it was adopted by the NMRG. This BoF led to the formation of the Autonomic Networking Integrated Model and Approach (ANIMA) WG.

Several documents were in the NMRG produced to transform the abstract AN concept into concrete requirements. However, there is an ongoing discussion in this RG about the initial set of definitions employed on AN and how to move forward with standardizing AN aspects. Thus, an I-D was proposed to revisit the AN terminology established in peer-reviewed literature and to contribute such discussion [Pentikousis et al. 2015]. In this context, one of the authors of the present paper was invited to contribute to such I-D, specially concerning Autonomic Monitoring aspects. The I-D was presented in the 35th and 36th NMRG meetings in order to collect feedback. The next step for this I-D is calling for adoption by the NMRG.

Several research topics investigated in the Computer Networks Research Group of UFRGS² are related to different IETF WGs. One of the most important research lines of such group is Policy-Based Network Management (PBNM). This research line is related to the Simplified Use of Policy Abstractions (SUPA) BoF which was held in IETF 92. This BoF was aimed at the challenges to deploy new services and to manage networks to maintain the stability and availability of critical services by network operators in the context of the complexity of modern networks. Thus, it is necessary to streamline the operations and the deployment of new services, which can be done through the programmatic control of network elements with service and policy models [Karagiannis et al. 2015].

2. Final Remarks

The participation of the authors on the IETF is beneficial for the authors themselves as well as for the Brazilian insertion in the IETF. The experiences gained in such participation can be shared through activities conducted at UFRGS, the university of the authors. This could help that other students and researchers get involved in areas related to Internet development and standardization according to their respective investigations.

Currently, the organization of remote hubs for IETF meetings is being performed in UFRGS. These hubs can broaden the audience in such meetings and the Brazilian participation as a whole.

²*Grupo de Redes de Computadores do Instituto de Informática da Universidade Federal do Rio Grande do Sul - <http://networks.inf.ufrgs.br/>*

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